REMARKS

Claims 1-15 were pending in this application, with claims 16-32 withdrawn from consideration. By this Preliminary Amendment, Applicants have amended claims 1-3, 5-7, 11 and 13-15 and added new claims 33-47. Accordingly, Applicants submit claims 1-15 and 33-47 for reconsideration. Applicants also submit that new claims 33-47 read on the elected group of claims. Support for new claims 33-47 can be found, for example, on page 19, lines 4-9 of the specification.

In the final Office Action dated April 20, 2001, claims 2-9 and 11-15 were objected to due to minor informalities. Applicants have amended claims 2, 7, 11, 14 and 15 to correct the informalities noted by the Examiner.

Claims 5-9 and 13 were rejected under 35 U.S.C. § 112, ¶ 2 as being indefinite. Applicants have amended claims 5, 6, 9 and 13 to place claims 5-9 and 13 in conformance with 35 U.S.C. § 112, ¶ 2.

Claims 1-6, 10-13 and 15 were again rejected under 35 U.S.C. § 103(a) as being unpatentable over Jahnke et al. (U.S. Patent 5,345,756) in view of Rice (U.S. Patent 4,571,935). Claim 1, as amended, recites that in an integrated coal gasification combined cycle power generator (IGCC), a steam turbine system performs expansion work, the steam turbine system comprising a condenser to condense steam from a heat recovery system into water, the water being supplied to a heat exchanger in a coal gasification system, where the water is heated to steam, and wherein the steam from the heat exchanger is supplied to more than one high-temperature section of a gas turbine system which are at a temperature higher than a temperature of the steam from the heat exchanger. Support for the amendment to claim 1 can be found, for example, in Figs. 2 and 3 and the associated description.

In the rejection, the Examiner admitted that Jahnke et al. fails to disclose or suggest that steam from a steam turbine system is supplied to a heat exchanger in a coal gasification system, heated to steam and supplied to more than one high-temperature section of a gas turbine system which are at a temperature higher than a temperature of the steam from the heat exchanger. Rather, Jahnke et al. discloses that steam from turbine 185 is condensed by cooler 198, preheated by heat exchanger 103 and then heated by successive passes through HSRG 181. Thus, not only does Jahnke et al. disclose that the condensed water preheated in heat exchanger 103 is supplied the HSRG 181 instead of a high-temperature

section of the gas turbine system, it only discloses supplying the condensed water preheated in heat exchanger 103 to one section of the HSRG 181.

The Examiner asserted, however, that Rice teaches that steam generated by steam turbine system is used to cool at least one high-temperature section of the gas turbine system which is at a temperature higher than a temperature of the steam. Even if combinable with Jahnke et al., Rice fails to cure the deficiencies of Jahnke et al. Rice discloses that lower pressure steam is extracted to cool the exhaust portion of the power turbine, readmitted to the steam turbine and condensed (Abstract). As shown in Fig. 1, although heat from turbines 38 and 40 are supplied directly to reheat gas turbine 20, the steam from turbine 42 condensed by condenser 46 is only supplied to heat recovery boiler 54. Rice therefore discloses that only one section receives the steam from a steam turbine that is first condensed.

Accordingly, even if combinable, Rice fails to cure the deficiencies of Jahnke et al. Like Jahnke et al., Rice discloses that steam from a steam turbine that is first condensed is only supplied to one section. Even though Rice discloses cooling multiple sections of the reheat gas turbine 20 with steam from turbines 38 and 40, this cooling is effected by supplying the steam directly, whereas the steam from turbine 42 condensed by condenser 46 is only supplied to one section. Accordingly, the combination of Jahnke et al. in view of Rice fails to disclose or suggest that steam from a steam turbine system is supplied to a heat exchanger in a coal gasification system, heated to steam and supplied to more than one high-temperature section of a gas turbine system which are at a temperature higher than a temperature of the steam from the heat exchanger, as recited in claim 1.

Claims 2-6, 10-13 and 15 are also patentably distinguishable from the combination of Jahnke et al. and Rice by virtue of their dependence from claim 1, as well as their additional recitations.

The Office Action further rejected claims 7 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Jahnke et al. in view of Rice, and further in view of Perkins et al. (U.S. Patent 5,160,096). Even if combinable, Perkins et al. fails to cure the deficiencies of Jahnke et al. and Rice. Like Jahnke et al. and Rice, Perkins et al. fails to disclose or suggest that water from a condenser in the steam turbine system is supplied to a heat exchanger in a coal gasification system, where the water is heated to steam, and wherein the steam from the heat exchanger is supplied to more than one high-temperature section of

a gas turbine system which is at a temperature higher than a temperature of the steam from the heat exchanger. Accordingly, claims 7 and 14 are patentably distinguishable from the combination of Jahnke et al., Rice and Perkins et al. by virtue of their dependence from claim 1, as well as their additional recitations.

Lastly, the Office Action rejected claim 8 and 9 under 35 U.S.C. § 103(a) as being unpatentable over Jahnke et al. in view of Rice, and further in view of Iwata et al. (U.S. Patent 5,327,718). Like Jahnke et al. and Rice, Iwata et al. fails to disclose or suggest that water from a condenser in the steam turbine system is supplied to a heat exchanger in a coal gasification system, where the water is heated to steam, and wherein the steam from the heat exchanger is supplied to more than one high-temperature section of a gas turbine system which is at a temperature higher than a temperature of the steam from the heat exchanger. Accordingly, claims 8 and 9 are patentably distinguishable from the combination of Jahnke et al., Rice and Iwata et al. by virtue of their dependence from claim 1, as well as their additional recitations.

New claim 33 recites that an integrated coal gasification combined cycle power generator (IGCC) comprises, *inter alia*, a steam turbine system comprising a condenser to condense steam from a heat recovery system into water, the water being supplied to a heat exchanger in a coal gasification system, where the water is heated to steam, wherein the steam from the heat exchanger is supplied to at least one high-temperature section of a gas turbine system which is at a temperature higher than a temperature of the steam from the heat exchanger, and wherein high-pressure from an air compressor in the gas turbine system is supplied to cool the at least one high-temperature section of the gas turbine system if steam is not yet generated by the heat exchanger in the coal gasification system.

In the Office Action, the Examiner admitted that Jahnke et al. and Rice fail to disclose or suggest that the gas turbine system includes an air compressor that supplies air to at least one high-temperature section of the gas turbine system for the purpose of cooling the high-temperature section, but asserted that Perkins et al. teaches this limitation. Perkins et al. discloses that low pressure compressor 24 discharges air through intercooler 26 to high pressure compressor 28, which discharges compressed air through line 29 to saturator 30 (column 2, lines 53-57). The air then passes to heat exchanger 42 and passes through line 32 to a diffuser area 34 where it is used as combustion supporting air in the combustor 10 (column 2, lines 57-61).

In contrast to claim 33, Perkins et al. fails to disclose or suggest that high-pressure from an air compressor in the gas turbine system is supplied to cool the at least one high-temperature section of the gas turbine system if steam is not yet generated by the heat exchanger in the coal gasification system. In fact, Perkins et al. fails to disclose or suggest any condition by which compressors 24 and 28 supply high pressure air. Moreover, Perkins et al. discloses that the air from compressors 24 and 28 is used as combustion supporting air in the combustor 10, not to cool at least one high-temperature section of the gas turbine system, as recited in claim 33. Accordingly, claim 33, as well as claims 34-47 depending therefrom, are patentably distinguishable from the references cited by the Examiner.

Applicants respectfully submit that the application is in condition for allowance and request reconsideration. Should the Examiner have any questions or suggestions regarding this application, the Examiner is invited to contact the undersigned attorney at the telephone number shown below.

Respectfully submitted,

September 20, 2001
Date

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Should additional fees be necessary in connection with the filing of this paper, or if a petition for extension of time is required for timely acceptance of same, the Commissioner is hereby authorized to charge Deposit Account No. 19-0741 for any such fees; and applicant(s) hereby petition for any needed extension of time.

Version with Markings to Show Changes Made

In The Claims

1. (Twice Amended) An integrated coal gasification combined cycle power generator (IGCC) comprising:

a coal gasification system for producing a combustible gas from coal, wherein said gasification system supplies said combustible gas to a gas turbine system;

said gas turbine system comprises a gas turbine for performing expansion work using said combustible gas, wherein said gas turbine supplies exhaust gas to a heat recovery system;

said heat recovery system performs heat exchange, wherein said heat recovery system uses said exhaust gas supplied from said gas turbine as a heat source, and supplies steam generated in the heat exchange to a steam turbine system;

said steam turbine system performs expansion work, said steam turbine system comprising a condenser to condense said steam from said heat recovery system into water, said water being supplied to a heat exchanger in said coal gasification system, where said water is heated to steam, and wherein said steam from said heat exchanger is supplied to [at least] more than one high-temperature section of the gas turbine system which [is] are at a temperature higher than a temperature of said steam from said heat exchanger.

2. (Twice Amended) An IGCC according to claim 1, wherein a higher-temperature steam is produced after cooling said more than one high-temperature section of the gas turbine system with said steam from said heat exchanger, said higher-temperature steam is recovered from said [at least] more than one high-temperature section of the gas turbine system and supplied to a steam turbine in said steam turbine system.

3. (Twice Amended) An IGCC according to claim 2, wherein said [at least] more than one high-temperature section of the gas turbine system is at least [one of] said gas turbine and a gas turbine combustor.

5. (Amended) An IGCC according to claim 4, wherein said coal supplying unit employs the nitrogen gas from said gasification substance producing unit.

6. (Amended) An IGCC according to claim 5, wherein the nitrogen gas produced in said gasification substance producing unit is supplied to said gas turbine combustor, [said] the nitrogen gas combined therein with said combustible gas.

7. (Twice Amended) An IGCC according to claim 6, wherein said gas turbine system comprises an air compressor that supplies air to said at least one of said more than one high-temperature section of the gas turbine system for the purpose of cooling said at least one of said more than one high-temperature section, producing a higher-temperature air, and wherein

said higher-temperature air is recovered after cooling said at least one of said more than one high-temperature section and supplied to said heat recovery system.

9. (Twice Amended) An IGCC according to claim 5, further comprising:

a detector for detecting a calorific value of said combustible gas from said gas cleanup unit; and

a controller for controlling [the] a flow rate of pressurized air from an air compressor, wherein said pressurized air is supplied to said gasification substance producing unit based on said calorific value.

10. (Twice Amended) An IGCC according to claim 1, wherein a higher-temperature steam is produced after cooling said [at least] more than one high-temperature section of the gas turbine system with said steam from said heat exchanger, and wherein

said higher-temperature steam is recovered from said [at least] more than one high-temperature section of the gas turbine system and supplied to said heat recovery system.

11. (Twice Amended) An IGCC according to claim 10, wherein said [at least] more than one high-temperature section of the gas turbine system is at least [one of] said gas turbine and a gas turbine combustor.

13. (Amended) An IGCC according to claim 12, wherein said coal supplying unit uses the nitrogen gas from said gasification substance producing unit.

14. (Twice Amended) An IGCC according to claim 10, wherein air generated in an air compressor in said gas turbine system is supplied to [said] at least one of said more than one high-temperature section of the gas turbine system for the purpose of cooling said at least one of said more than one high-temperature section, producing a higher-temperature air, said higher-temperature air is recovered after cooling said at least one of said more than one high-temperature section and supplied to said heat recovery system.

15. (Amended) An IGCC according to claim 10, wherein said higher-temperature steam is recovered from said more than one high-temperature section of the gas turbine system and supplied to said heat recovery system and to said steam turbine.